

primigenius?), viz. the whole of the right ramus of the lower jaw to beyond the symphysis, and a tusk. The tusk was much curved, as will appear from the following dimensions:—length along the greatest curve, 6 ft. 8 in.; from the base straight to the point, 4 ft. 2½ in.; two feet from the base, to which length I suppose was imbedded in bone, straight to the point, 3 ft. 3¼ in. The dimensions of the jaw are—from the angle to the symphysis 19 in.; from the condyloid process to the symphysis 2 ft. 2 in.; from the angle to the top of the condyloid process 18 in.; from base of angle to top of the coracoid process 12 in. The jaw contained only one molar; this tooth was very perfect; the width of the upper surface 3¼ in., the length 13, of which 4¼ had been used.

The remains were found 40 feet below the surface and 60 above the level of the lake, in a layer of sand, superimposed on which were successive layers of cemented gravel and sand, the layers of gravel varying both in width and in the size of the pebbles: this narrow spit of land seems to have been a bar formed at the mouth of a large estuary which must have flowed into Lake Ontario. To the east of this bar is Burlington Bay, the head of Lake Ontario, from which it is separated by a similar bar through which a canal is cut into the lake, and which bank I am informed is still rising. To the west are the Dundas marshes, which find their exit into Burlington Bay round the point of Burlington Heights, and through which the Desjardin Canal is carried. Behind Dundas, running east and west, is a long, deep and wide valley bounded on the north and south by ridges of Niagara limestone, and down which valley doubtless once flowed a large body of water.

In sinking a coffer-dam near this spot for the foundation of a bridge where the railroad will cross the Desjardin Canal, were found, deep in the silt, the scapular and some fragments of the bones of the extremities of an herbivorous animal about the size of a fallow-deer.

Your obedient servant,

THOMAS COTTLE.

Remarks on the Mode of Vegetation of European and North American Trees transported to Madeira. By Prof. OSWALD HEER.

Mr. Heer, of Zurich, so well known by his observations on the botanical geography of the Swiss mountains, having been compelled by the state of his health to make some stay at Madeira, has employed his time whilst there in studying, in various points of view, the vegetation of that island; the climate of which is remarkably equable throughout the year.

Since his return he has laid before the Société Helvétique des Sciences Naturelles, several interesting observations relative to the periodical phænomena of vegetation. After remarking that all the woody plants of Madeira are evergreen trees or shrubs, blossoming very often during the cool season, he observes how much the species introduced from more northern countries contrast with these indigenous species in their mode of vegetation:

The oak and the beech, for instance, continue to lose their leaves

during the winter, although the weather is then milder than it is in several parts of Europe during the summer. Thus, at Funchal, the leaves of oaks (*Quercus pedunculata*) planted in some public gardens and promenades began to grow yellow at the end of October, and gradually became dried up to the 1st of January. Some isolated trees began to shoot by the 10th of January, and were green again on the 6th of February; but all the others remained in a state of repose and were not generally covered with new leaves until the 20th of February. In Mr. Gordon's garden, at an elevation of 1800 feet, they were a month later.

The leaves of the beech became yellow at Funchal by the 8th of November, at Mr. Gordon's garden by the 28th of October. The leaves, or at least the greater part of them, remained in a dry state upon the trees, until they began to shoot in the spring, which was about the 1st of April. At Funchal, the terminal buds were open by the 8th of April, and the lateral a little later. At Glaris, the period of repose of the beech on an average is 194 days; in Madeira, where the cold season is like the summer at Glaris, it is 149 days. The difference is only 45 days. The oak in Switzerland has a period of repose nearly equal to that of the beech, whilst at Madeira it is only 110 days, or 49 days less than the beech. M. Heer supposes that this difference may arise from the beeches of Madeira having been introduced from England and the oaks from Portugal, so that the latter would have previously acquired the habit of losing their leaves later and vegetating sooner than in the centre of Europe.

M. Heer ought perhaps to have added, what he no doubt knows, that sudden variations of temperature in the twenty-four hours, especially the instantaneous diminution to 32° Fahr. or lower, are one of the great causes of the fall of the leaves in Switzerland. The absence of these variations retards the phenomenon in the west of Europe, and still more in Madeira.

In the facts stated by M. Heer,—facts of which we previously had examples in the hothouse culture of tropical plants,—there is a proof of that important physiological law, too often forgotten by meteorologists, that *the same temperature or the same sum of temperatures, combined with the season, does not always produce the same effect upon organized beings.*

Every species is as it were a machine which performs its functions under the influences of external causes, modified by particular internal conditions. These vary not only between one species and another, between one race of a species and another, and even up to a certain point between one individual and another, but also between one period and another,—the same heat after the repose of vegetation for instance, not producing the same effect as in other circumstances.

In Madeira, the *Platanus occidentalis*, a native of the United States, loses its leaves very slowly from the middle of October, or rather they gradually become yellow and fall afterwards from the action of wind and rain. The repose is complete in January, February, and up to April, during a period of 87 days. The *Liriodendron tulipifera*, also a native of North America, has a complete repose of 151 days.

The apple and pear trees generally begin to lose their leaves in December. They come into flower, at Funchal, by the 7th of April, and their fruit is collected in August. There are, however, varieties of apple and pear trees which flower and produce fruit twice in the year, and one variety of apple is perpetually in flower and fruit. The peach-trees about the 4th of November already exhibit some flowers amongst their leaves; they then, to the great astonishment of M. Heer, continued blossoming in abundance during the months of December and January, and the fruit came to maturity from the 23rd of February to the end of the summer. In February there were flowers on the upper parts of the trees and fruit below, and it was also then the leaves were renewed, the interval between the falling and shooting of the leaves being scarcely sensible. The vines around Funchal began to lose their leaves about the 24th of October. The soil of the vineyards in winter offered the singular appearance of being covered with the flowers of *Oxalis speciosa* (a Cape plant) and of *Calendula arvensis*. New leaves appeared by the end of March, and by the 8th of April the vines were completely in leaf, with young floral grapes. The flowers open at the end of April and the beginning of May, and the vintage takes place in September. The repose lasts 157 days. A. DECANDOLLE in *Bibl. Univ. de Genève*, Août 1852, p. 325.

COLYMBUS SEPTENTRIONALIS.

To the Editors of the Annals of Natural History.

The Willows, Swansea, Oct. 2, 1852.

GENTLEMEN,—On the 30th of September, *Colymbus septentrionalis*, the Red-breasted Diver, was taken in one of the weirs in Swansea Bay. Only two of these birds have been noted here previously, and as far as I can ascertain, both of them were killed in the winter. The very early advent of this native of the north is my reason for thinking that you may wish to insert the above notice.

Your obedient servant,
MATTHEW MOGGIDGE.

On the Structure of the Stem of Victoria Regia.—

By ARTHUR HENFREY, F.R.S., F.L.S. &c.

The investigation of the anatomy of *Victoria regia* acquires its interest from the fact of the relations which have been pointed out to exist between the Nymphæaceæ and some of the undoubted Monocotyledonous families, especially also from the researches of M. Trécul on the anatomy of *Nuphar lutea*, which plant that author describes as having a stem of the Monocotyledonous type of structure. Through the unfortunate death of the plant of *Victoria regia*, which had flowered for some time in the gardens of the Royal Botanic Society of London, the author had an opportunity of examining the anatomy of its stem. It is an upright rhizome, with undeveloped internodes, growing by a single terminal bud, apparently perennially, and attaining considerable thickness; on the outside it bears the remains of the petioles and flower-stalks, which